INTEGRATED URBAN FOREST ASSESSMENT

FOREST ECOSYSTEM VALUES: i-Tree Eco Assessment for Seattle, WA

PROJECT BACKGROUND

The Green Cities Research Alliance[1], a partnership between the US Forest Service, University of Washington, King County, and the Cascade Land Conservancy, was initiated in 2009 and includes a multi-phase research project referred to as the Integrated Urban Forest Assessment (IUFA), funded by the American Reinvestment and Recovery Act. IUFA aims to support green job creation while working to understand regional forest conditions, forest stewardship activities, and potential public health benefits.

Initial forest condition research will take place in Seattle during the summer of 2010 with the twofold goal to support City of Seattle data needs while working to improve forest ecosystem valuation and landscape rapid assessment tools. The project will generate assessment procedures and analysis considerations specific to Pacific Northwest conditions that will then be applied in King County during 2011.

RESEARCH OBJECTIVES

- To estimate monetary values of ecosystem services provided by Seattle trees
- To estimate tree species and age class distribution to assist in planning for succession and diversity in the different land use classes
- To identify potential pest hazards
- To engage the public on the importance of urban forests and to provide printed tree care materials to private property owners
- To establish permanent plot locations for future i-Tree assessments
- To contribute to IUFA efforts to improve forest assessment tools for use in King County and other Pacific Northwest communities

METHODS

Experiment Design

The City of Seattle i-Tree Assessment will include roughly 300 plots at 0.10 acre in size (radius of 37.2 ft) distributed throughout the city on public and private property. City of Seattle Urban Forest Management Units listed in the Urban Forest Management Plan[2] will be used to pre-stratify the study area before randomly selecting plot locations.

Private Property Access

Cascade Land Conservancy, with assistance from the City of Seattle, will use addresses of private property parcels that fall within selected plots to develop a targeted public outreach campaign. The initial mailing will include project information, a response postcard, as well as website and contact information. City of Seattle will coordinate efforts to translate written materials and potentially provide funding for a translator to assist the field crew in targeted neighborhoods.

[1] Green Cities Research Alliance - http://faculty.washington.edu/kwolf/GCRA/GCRA_rsrch_prjcts.shtml
[2] City of Seattle Urban Forest Management Plan - http://www.seattle.gov/environment/documents/Final_UFMP.pdf

Field Work
Field data collection will occur from June 2010 to September 2010. Field crew members include the CLC Forest Assessment Coordinator and two King County seasonal field staff. Public property will be visited first to provide more time for private property access approval.

Analysis and Reporting
Analysis will occur during fall 2010 using i-Tree Eco and i-Tree Hydro software. When data entry is complete, the project information will be sent to the US Forest Service Northern Research Station in Syracuse for analysis. In order to assure that results are accurate for Seattle and Pacific Northwest conditions, a calibration project will be initiated during October 2010 with help from USFS Southern Research Station staff, Auburn University, and i-Tree Eco staff.

A written report including research findings and numbers appropriate for general use will be prepared for the City of Seattle by the Forest Assessment Coordinator. US Forest Service and University of Washington staff will prepare additional materials for scientific publication.

PRODUCTS

- Existing tree information, including species composition, size composition, canopy cover by land classification, total tree estimates, structural values (costs to replace existing tree resource)
- Ecosystem service values, including pollution removal values (CO, NO_2, O_3, PM10, SO_2), regional energy savings, carbon storage estimates, and carbon sequestration estimates
- Stormwater management benefits, including hourly and total changes in stream flow and water quality
- Potential pest impacts
- Potential plantable space by land classification
- Public outreach to private property owners, including distribution of written materials
- Tabular and spatial data
- Written report and scientific publication

TIMELINE

Complete field data collection for Seattle	6/7 – 10/1/2010
Calibrate i-Tree model for PNW use	November 2010
Data Analysis	November - December 2010
Final Seattle report and data transfer	February 2010

PROJECT CONTACTS

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King County